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Date 1901. G.M.T.			Hour Angle.	Day from Beginning of the Year.	Position Angle.		Remarks.
	d	h			°	′	
Nov.	14	10½	3½E.	317·4			Powers 670 and 1120. Star nucleus very small indeed and beautifully defined. A large number of rings almost perfect and circular. If the disc is not round the elongation is at 263°·2 or 83°·2.

Observer ... ... **Mr. Bryant.**

Mar.	1	3	3¾E.	59·1	207	25	Power 670. Clouds passing. Very windy. Occasional glimpses of fine definition through thin clouds. Two blue shades used.
Apr.	17	6	2½W.	106·3	30	48	Power 670. Definition fine through thin cloud. Elongation very slight.
	20	0	3 E.	109·0	28	25	Power 670. Very windy. Sky very clear. Star very bright. Seeing at intervals excellent when wind dropped. Two blue shades used. With power 1120 effect of wind greater, preventing measures.
	22	5½	2½W.	111·2	14	12	Power 670. Definition fair. Star small and steady. Thin clouds. Elongation very slight. Two blue shades used.
	26	5½	2½W.	115·2	359	5	Power 670. Very windy. Definition fair momentarily. Clouds passing.
	30	5¼	3 W.	119·2	344	55	Powers 670 and 1120. Definition very fine indeed, but elongation very slight. Measures give distance about 0″·08 (power 1120). Distance thought to be really less than measures indicate. Two blue shades used.
May	24	5½	4½W.	143·2	267	29	Power 670. Very windy, otherwise definition at times good. Blue shades used. Too windy to use higher power. Measures of distance give 0″·09.
July	4	0½	2½W.	184·0	135	25	Power 670. Hazy. Image very unsteady, but small. Two blue shades used.
	11	0	2½W.	191·0	112	51	Power 670. Definition fair at long intervals. Sky hazy. Two blue shades used. Apparently this is the right quadrant.
Aug.	18	22	2¾W.	229·9	326	40	Power 670. Sky hazy. Definition fair. N.E. wind. Quadrant seems to be right. Used two shades or one or more as haze varied.
	19	21¾	2½W.	230·9	322	42	Power 670. Through cloud. Two blue shades used. Star very bright and diffused. Strong N.E. wind.

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Date 1901. G.M.T.		Hour Angle.	Day from Beginning of the Year.	Position Angle.	Remarks.
d	h			° ′	
Aug. 20	22¼	3¼W.	231·9	319 32	Powers 670 and 1120. Thin cloud. Two blue shades used. Definition not very good. Star diffused, generally with moments of better seeing. Measures of distance give 0″·078.
21	22½	3½W.	232·9	316 0	Powers 670 and 1120. Two blue shades used. Taken during lulls of wind. Definition at times very good.
Sept. 1	21½	3 W.	243·9	279 27	Powers 670 and 1120. Blue and green shades used. Through thin cloud. Definition varying. Measures of distance gave 0″·09.
Observer		...	...	...	... Mr. Bowyer.
Jan. 2	7½	3¾E.	1·3	45 3	Powers 670 and 1120. Sky very hazy. Definition fair. Rings visible occasionally. Measures easier than December 29.
15	6¾	2¾E.	14·3	18 8	Powers 670 and 1120. Measures made with and without blue shade. Definition fair. Several rings visible occasionally. Image rather diffused with high power.
18	6¾	2½E.	17·3	11 0	Powers 670 and 1120. Definition fair, but image unsteady. Measures made with and without blue shade. Elongation seemed rather more apparent. Measures easier than for κ Pegasi.
Mar. 11	10¼	4½W.	69·4	176 2	Powers 670 and 1120. Measured through clouds when star appeared of about 8½ mag. Definition very fair at first, but as clouds became thicker definition got much worse.
Apr. 12	7½	3¾W.	101·3	53 9	Power 670. Measures made in twilight during short intervals of fair definition. Elongation very slight.

Σ 484 *and* Σ 485, *and Two Pairs.* By the Rev. T. E. Espin, M.A.

This fine group forms cluster H VII. 47. Mr. Holmes has given a drawing of it in the *English Mechanic*, 1901 December 27, and calls attention to the fact that there are several *comites* to Σ 485, and a pair similar to Σ 484 following. Two of the *comites*, D and E, had been previously seen and measured by Dembowski. Of the other *comites* F is fainter than either of Dembowski's, and the other two are more distant. When examining the group on January 17 with the 17¼-inch reflector a much nearer and more

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difficult *comes* than any of these was suspected, and on January 28 and on subsequent nights it was seen and measured, but with great difficulty. The following are the previous results of the measures of this group, together with my own recent measures, which are, in general, the means of three nights' observations.

	Epoch.	Position Angle.	Distance.	Observer.
		°	″	
AB (Espin)	1902·09	257·0	5·43	Espin.
AC (Σ 485)	1830·24	303·32	17·98	Σ.
	1867·32	303·07	17·89	De.
	1902·09	303·30	17·45	Espin.
CD (Demb.)	1867·10	85·10	...	De.
	1902·10	84·75	14·15	Espin.
CE (Demb.)	1867·68	333·65	19·86	De.
	1902·09	333·07	18·87	Espin.
A^1B^1 (Σ 484)	1830·87	132·42	5·42	Σ.
	1867·32	130·80	5·38	De.
	1902·09	133·55	...	Espin.
A^1C^1	1830·87	244·05	48·96	Σ.
	1867·32	244·23	48·99	De.
	1902·11	244·7	48·8	Espin.
AF (Holmes)	1902·09	129·4	13·95	Espin.
A^2B^2 (Holmes)	1902·07	216·0	5·65	Espin.
CA^1	1902·11	244·7	48·8	Espin.
AA^2	1902·07	71·2	89·9	Espin.

I make the magnitudes as follows: A = 6·0; B = 12·0; C = 6·1; D = 10·8; D = 11·0; F = 11·5; A^2 = 9·5; B^2 = 10·5. Of Mr. Holmes's other two *comites* one is more distant than D′ in the same quadrant, and the other is about 10″ from E.

A comparison of the measures of the brighter stars shows that there is no motion within the group so far, and it would be interesting to know if a proper motion can be found for either of these stars.

In the course of the observations two pairs were found and measured :—

No. 1 B.D. +62°·640 R.A. 3^h 51^m 27^s Decl. +62° 10′·3 (1880).

			Mags.		
AB	P 221°·3	D 1″·48	8·2	8·5	1902·079
	220·3	1·48	8·2	8·6	·115
AC	169·7	8·2		10·5	·079
	169·4	8·6			·115

[A letter received since the above was written informs me that the pair No. 1 had been previously detected by Bird, and has been measured by Doolittle.]

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No. 2 B.D. +61°·666 R.A. $3^h\ 55^m\ 19^s$, Decl. +61° 50′·5 (1880).

	P	D	Mags.		
	°	″			
AB	247·5	4·9	8·6	10·0	1902·079
	249·9	5·1	8·5	11·0	·112

The first is marked "Dupl ?" in the zones of the Astronomische Gesellschaft.

[*Note added by Mr. Lewis.*]

The two principal stars in this group are *Lalande* 7430 and 7433. The following are the places, brought up to 1890, from various catalogues :

		R.A. Lalande 7430. h m s	R.A. Lalande 7433. h m s
Lalande	1800	3 58 8·302	3 58 10·392
Oeltz. Arg. (N)	1842	8·301	10·101
Radcliffe	1845	8·176	10·576
Brussels	1865	8·122	10·322
Romberg	1878	8·227	10·297
Helsingfors	1881	8·227	10·377
Greenwich	1895	8·102	10·228

		N.P.D. Lalande 7430. ° ′ ″	N.P.D. Lalande 7433. ° ′ ″
Lalande	1800	27 57 52·1	27 58 4·1
Oeltz. Arg. (N)	1842	58·07	8·0
Radcliffe	1845	58·0	7·5
Brussels	1872	59·46	9·44
Romberg	1878	58·95	8·25
Helsingfors	1881	57·85	6·95
Greenwich	1890	59·52	9·45

These places are few and very precarious, and as the micrometer measures show no change it is fair to combine the two stars. The mean seconds for R.A. and N.P.D. 1890 are these :

	R.A. s	N.P.D. ″
Lalande	9 348	58·10
Oeltz. Arg.	·201	63·07
Radcliffe	·376	62·75
Brussels	·222	64·45
Romberg	·262	63·60
Helsingfors	·304	62·40
Greenwich	·165	64·49

results from which it is unsafe to deduce any proper motion. No systematic corrections have been applied.

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Micrometrical and Visual Observations of Nova Cygni (1876) *made with the* 40-*inch Refractor of the Yerkes Observatory.*

By E. E. Barnard.

On the evening of 1876 November 24, at $5^h\ 45^m$, Schmidt at Athens discovered a brilliant star of the 3rd magnitude in *Cygnus* where a few days previous none such had existed. It rapidly faded, and by December 15 had ceased to be visible to the naked eye. The period of visibility without the telescope, therefore, did not extend over more than twenty-two days.

The most rapid decline in its light occurred between 1876 November 27 and November 29, when, according to Schmidt, in less than two days it faded through nearly 1½ magnitude. From then on until it ceased to be visible to the naked eye the decline was slow and gradual at about 0·13 magnitude a day. By 1877 February 1 it had reached 7·5 magnitude. By 1877 September 1 it had declined to the 10th magnitude, at which brightness it remained for nearly a year. Throughout 1880 and the first part of 1881 it remained constant at slightly less than 12 magnitude. On 1882 March 24 the Dun Echt observers estimated it to be of the 14th magnitude. There seem to be no other observations to verify this last estimation. Nearly ten years later (July 31, 1891) Professor Burnham examined the star with the 36-inch of the Lick Observatory and estimated it to be 13·5 magnitude. He found it a little brighter than the star No. 50, which he estimated to be 14 magnitude. I have not found any later observations of the star.

At the observations in 1891 (*Pub. L. O.*, vol. ii., p. 179), Professor Burnham says: "At times the new star did not seem to have a perfectly stellar appearance under moderately high powers, but rather to resemble an exceedingly minute nebula. This appearance, however, may not be real. The star is too faint to allow one to decide a question of this kind with any certainty. I did not make any measures from surrounding stars, as that has been very thoroughly done by the authors of the paper referred to [Copeland and Lohse: *Copernicus*, vol. ii., 101]."

Fearing the possible total disappearance of the *Nova*, Copeland and Lohse made an extensive series of measures of its position with respect to 112 surrounding stars. These observers state in *Copernicus*, vol. ii.: "Towards the end of 1877 October *Nova Cygni* had decreased still further in brightness, and so pointed to the possibility that it might eventually fade altogether from view. In the event of such a contingency it seemed very desirable to possess a map of the small stars in the immediate neighbourhood; accordingly measures in position-angle and distance from the new star to surrounding objects were commenced on October 29 and added to as occasion offered, until the whole series of measures extended to 38 nights, the last being 1882